

WHAT IS CLAIMED IS:

1. A recording apparatus for recording, on a recording medium, an audio video stream which is obtained by coding an audio video signal including an audio signal and a video signal, said apparatus comprising:

an attribute detector for detecting an attribute relating to at least one of the video signal and the audio signal on the basis of the audio video stream, and outputting attribute data indicating the attribute;

an information generator for detecting a recording position in the audio video stream recorded on the recording medium, which recording position corresponds to a point where the attribute changes, or a recording time of the audio video stream based on a reference time, which recording time corresponds to the attribute change point, and outputting attribute change information indicating the recording position or the recording time; and

a recorder for recording the attribute data and the attribute change information on the recording medium.

2. The recording apparatus of Claim 1, wherein:

said attribute detector detects a video attribute relating to the video signal and an audio attribute relating to the audio signal, and outputs attribute data indicating each attribute; and

said recorder records the attribute data indicating the video attribute and the attribute data indicating the audio attribute

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in predetermined recording areas of the recording medium, respectively.

3. The recording apparatus of Claim 1, wherein:

said attribute detector detects the video resolution of the video signal as an attribute relating to the video signal, and outputs video resolution data indicating the video resolution;

on the basis of the video resolution data, said information generator detects a recording position in the stream recorded on the recording medium, which recording position corresponds to a point where the video resolution changes, or a recording time of the stream based on a reference time, which recording time corresponds to the video resolution change point, and outputs attribute change information indicating the recording position or the recording time; and

said recorder records the video resolution data and the resolution change information on the recording medium.

4. The recording apparatus of Claim 1, wherein:

said attribute detector detects the aspect ratio of the video signal as an attribute relating to the video signal, and outputs aspect ratio data indicating the aspect ratio;

on the basis of the aspect ratio data, said information generator detects a recording position in the stream recorded on the recording medium, which recording position corresponds to a

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said recorder records the aspect ratio data and the aspect ratio change information on the recording medium.

a packing unit for performing packing to divide the audio video stream into plural streams corresponding to packs as data units each having a predetermined size, and outputting the audio video stream corresponding to each pack as pack data;

an attribute detector for detecting an attribute relating to at least one of the video signal and the audio signal, and outputting attribute data indicating the attribute; and

said packing unit performing the packing such that a position in the audio video stream, where the attribute changes, is positioned at the head of the pack.

6. The recording apparatus of Claim 5, wherein:

said attribute detector detects a video attribute relating to the video signal and an audio attribute relating to the audio signal on the basis of the audio video stream, and outputs video attribute data indicating the video attribute and audio attribute data indicating the audio attribute; and

said recorder records the video attribute data and the audio attribute data in predetermined areas of the recording medium, respectively.

7. The recording apparatus of Claim 5 further comprising:

an information generator for detecting a recording position in the audio video stream recorded on the recording medium, which recording position corresponds to a point where at least one of the audio attribute and the video attribute changes, or a recording time of the audio video stream based on a reference time, which recording time corresponds to the attribute change point, and outputting attribute change information indicating the recording position or the recording time; and

said recorder records the attribute change information on the recording medium.

8. The recording apparatus of Claim 5, wherein:

said attribute detector detects the video resolution of the video signal as an attribute relating to the video signal, and

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9. The recording apparatus of Claim 5, wherein:

said packing unit performs the packing, on the basis of the aspect ratio data, such that a position in the video stream, where the aspect ratio changes, is positioned at the head of the pack.

a video object composer for dividing the audio video stream into plural streams corresponding to management units for managing the audio video stream, and outputting the stream corresponding to each management unit as video object data;

a recorder for recording management information for managing each video object data on the recording medium;

an attribute detector for detecting an attribute relating to at least one of the video signal and the audio signal on the basis of the audio video stream, and outputting attribute data indicating the attribute; and

when the attribute changes, said video object composer dividing the audio video stream, on the basis of the attribute data, such that a portion of the audio video stream before the attribute change point and a portion of the audio video stream after the attribute change point are output as different video object data.

11. The recording apparatus of Claim 10, wherein said management information includes information relating to the recording position of each video object data on the recording medium, or the recording time of each video object data based on a reference time.

12. The recording apparatus of Claim 10, wherein:

said attribute detector detects a video attribute relating to the video signal and an audio attribute relating to the audio signal on the basis of the audio video stream, and outputs video attribute data indicating the video attribute and audio attribute data indicating the audio attribute; and

said management information includes video attribute information indicating the video attribute and audio attribute

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information indicating the audio attribute.

13. The recording apparatus of Claim 10, wherein:

said attribute detector detects the video resolution of the video signal as an attribute relating to the video signal, and outputs video resolution data indicating the resolution; and

when the video resolution changes, said video object composer divides the video stream, on the basis of the video resolution data, such that a portion of the video stream before the video resolution change point and a portion of the video stream after the video resolution change point are output as different video object data.

14. The recording apparatus of Claim 10, wherein:

said attribute detector detects the aspect ratio of the video signal as an attribute relating to the video signal, and outputs aspect ratio data indicating the aspect ratio; and

when the aspect ration changes, said video object composer divides the video stream, on the basis of the aspect ratio data, such that a portion of the video stream before the aspect ratio change point and a portion of the video stream after the aspect ratio change point are output as different video object data.

15. A coding apparatus for coding a video signal, comprising:

a video encoder for subjecting the video signal to intra-

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frame coding or inter-frame coding such that a group of frames including at least one frame subjected to the intra-frame coding is generated, and a video stream corresponding to the frame group is output as a stream unit that can be accessed randomly;

a video attribute detector for detecting a video attribute of the video signal, and outputting video attribute data indicating the video attribute; and

said video encoder forming the frame group such that a specific frame, whose video attribute is different from that of a frame positioned just before it, is stored as a head frame in the frame group.

16. The coding apparatus of Claim 15 further comprising:

an audio attribute detector for detecting an audio attribute of an audio signal appended to the video signal, and outputting audio attribute data indicating the audio attribute; and

said video encoder forming the frame group such that a specific frame, whose video or audio attribute is different from that of a frame positioned just before it, is stored as a head frame in the frame group.

17. The coding apparatus of Claim 16 further comprising:

a packing unit for performing packing to divide the video stream into plural streams corresponding to packs as data units each having a predetermined size, and outputting the stream

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corresponding to each pack as pack data; and

said packing unit performing the packing such that a position in the video stream, where the video or audio attribute changes, is positioned at the head of the pack.

18. The coding apparatus of Claim 15, wherein said video encoder performs coding on each frame in a specific frame group including the specific frame, without referring to the video signal corresponding to frames in a frame group which has been coded previously to the specific frame group.

19. The coding apparatus of Claim 15, wherein:

said video attribute detector detects the video resolution of the video signal as a video attribute on the basis of the video signal, and outputs video resolution data indicating the video resolution; and

said video encoder forms the frame group, on the basis of the video resolution data, such that a specific frame, whose video resolution is different from that of a frame positioned just before it, is stored as a head frame in the frame group.

20. The coding apparatus of Claim 19 further comprising:

a packing unit for performing packing to divide the video stream into plural streams corresponding to packs as data units each having a predetermined size, and outputting the stream

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said packing unit performing the packing such that a position in the video stream, where the video resolution changes, is positioned at the head of the pack.

said attribute detector detects the aspect ratio of the video signal as the video attribute on the basis of the video signal, and outputs aspect ratio data indicating the aspect ratio; and

22. The coding apparatus of Claim 21 further comprising:

said packing unit performing the packing such that a position in the video stream, where the aspect ratio changes, is positioned at the head of the pack.